



Nortel IVR 2.5/S

Aculab-Based E1 CAS/ISDN PRI Signaling

Guide

Product release 2.5/S

Standard 1.0

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Nortel IVR 2.5/S

Aculab-Based E1 CAS/ISDN PRI Signaling Guide

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Chapter 1: Introduction

Overview

This manual provides information on the Aculab E1 CAS/ISDN PRI signaling option update for MRS 3.02.02, including

- system hardware and software requirements
- a brief description of the new E1 CAS/ISDN PRI signaling features
- hardware and software installation procedures

Also

- Appendix A shows how to connect to the MRS system and log in to the SCI.
- Appendix B shows the configurations of the Aculab ACL-30 and ACL-60 E1 cards.

CINFO cell limitation over DPNSS

The CINFO cell is used to pass information from the switch up to the application to allow the application to route calls appropriately. However, when the call is coming in over DPNSS, the CINFO cell can only process three types of information: the DNIS, ANI, and CLC. This is indicated by 0, 1, and 3 respectively in the CINFO cell. Attempting to retrieve other information forces the application to take the NO_DATA branch from the cell.

Chapter 2: System requirements

The base Nortel IVR 2.5/S system already includes the system requirements listed here for installing and using the Aculab-based E1 CAS/ISDN PRI Signaling option update for MRS 3.02.02. Specifically, these requirements are

- MRS 3.02.02 software running on the MRS
- SCO UNIX Release 3.2 (Version 4.2) operating system
- MRS/AP, MRS/Tower, and MRS/Rack with at least 32 Mbytes of memory and 128 kbytes of cache memory

Chapter 3: E1 CAS/ISDN PRI enhancements

Integrating the Aculab E1 CAS/ISDN PRI card into the MRS enables an attachment to a 2.048 Mbps telephone digital connection, which supports several signaling systems.

The MRS 3.02.01 E1 CAS/ISDN PRI option update provides the following enhancements:

- Using the `/sci/maint` menu, MRS 3.02.02 base package provides the ability to initialize channels for all Aculab hardware-based options.
- MRS 3.02.02 also provides new E1 CAS signaling firmware.

MRS currently supports one Aculab E1/ISDN card per system. Both 30-port and 60-port Aculab cards are supported.

E1 Signaling Systems

CAS

MRS 3.02.02 supports E1 CAS signaling systems for the following countries and protocols:

- Belgium
- Brazil
- China #1
- Mexico
- Malaysia (Singapore)
- Ericsson E&M (EEMA)

ISDN PRI

MRS 3.02.02 supports the following E1 ISDN PRI network protocol:

- Enhanced DPNSS

Note: You cannot use the DOUT cell with this signaling protocol.

Signaling features

MRS 3.02.02 supports the following signaling features:

- Incoming calls with ANI (CLID) DNIS
- Outgoing calls with the capability to send the calling party ID
- BOUT or CONP cell call conferencing (through Aculab's on-board switching matrix)

In addition to the basic functionality listed above, Enhanced DPNSS protocol implementation also supports the following functionality:

- Call diversion information transfer to an application
- Called line ID transfer to an application
- Route Optimization (when supported by your PBX or switch)

Chapter 4: Installing the Aculab E1/PRI signaling option

Before installing this option, your MRS system must have MRS version 3.02.02 installed. The base Nortel IVR 2.5/S system includes MRS 3.02.02 software, so it should already be installed on your MRS.

This chapter describes how to install the Aculab-based E1/PRI Signaling option hardware and software onto your MRS system. It also shows you how to configure the SCI country parameters for your desired signaling option. The installation is divided into three main steps:

- 1** installing the signaling option hardware
- 2** installing the signaling option software (for CAS or ISDN)
- 3** configuring the country parameters (for CAS or ISDN)

Installing the Aculab E1/PRI signaling option hardware

Procedure 4-1: Installing the Aculab E1/PRI signaling option hardware

- 1 Wear an antistatic wrist band when handling the option cards. Unpack the Aculab E1/PRI Signaling option card(s) and remove them from the antistatic bag.



CAUTION

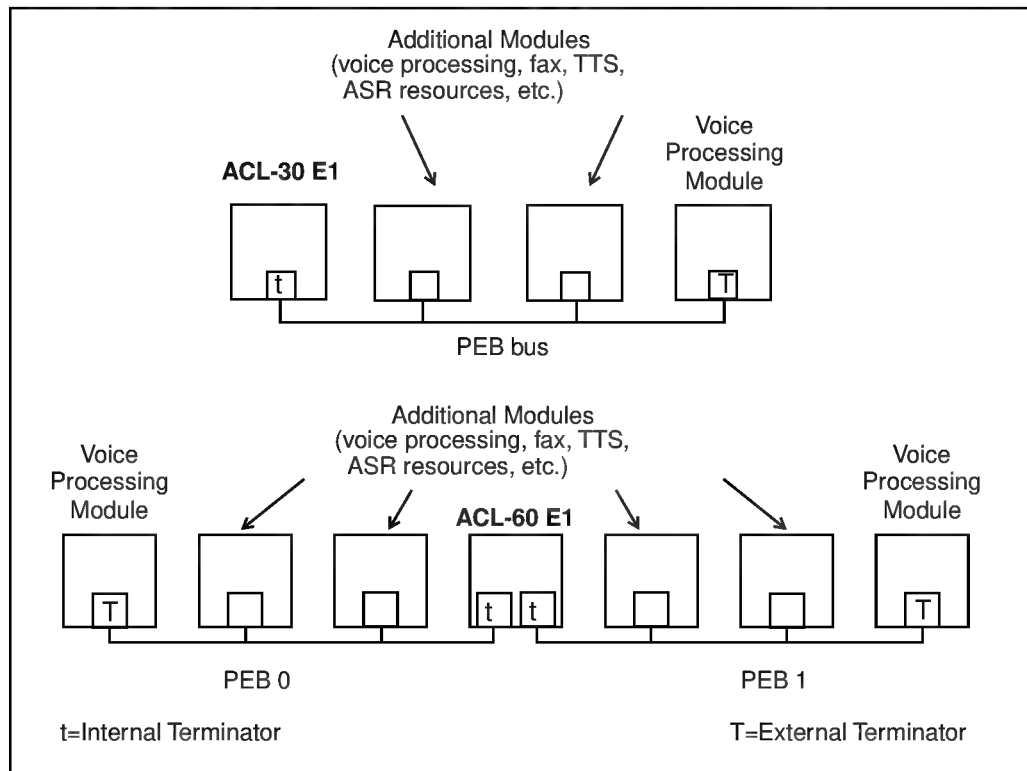
Risk of equipment damage

Always observe proper precautions when working with the system. Be sure to follow all applicable Electrostatic Discharge (ESD) guidelines during configuration and installation of the option cards.

- 2 Shut down the MRS system as described in the appropriate MRS system product manual.
- 3 Once the shutdown process is complete, turn off the power to the system.
- 4 Configure the Aculab E1 interface card(s) as shown on the configuration drawings in Appendix B. The Aculab E1 interface card(s) must be installed at the end of the PEB or PEBs. The illustrations and tables in Appendix B illustrate proper I/O Addressing, Board Operation, and Hardware Interrupt settings. Please read the notes that follow the tables.
- 5 Open the system and find an open slot where you can install the Aculab E1 interface option card(s). Follow the recommendations in Step 4.
- 6 Remove the PEB cable from the cards that will be connected to the Aculab E1 Interface card.
- 7 Slide the Aculab E1 Interface card into the system. Do not tighten the retaining screws yet.
- 8 Reconnect all the cards together with the PEB cable. You may need to lift some cards from their slots to attach the PEB cable.
- 9 Make sure the card(s) are properly seated and aligned before installing the card-retaining screws. Install and secure the card-retaining screws.

- 10 Power up the system and allow it to boot normally. When the ready light on the front panel stops flashing, the installation of the Aculab E1 interface option hardware is complete.

Figure 4-1: Possible PEB bus configurations with the Aculab modules



Installing the Aculab-based E1/PRI signaling option software

Note: New systems are pre-loaded at the factory with both CAS and Enhanced DPNSS protocols. The software installation procedures discussed in this section are required only for restoring the software or if the signaling option is purchased separately after the initial purchase of the base system.

There are two types of signaling option packages you can install:

- CAS signaling option (see Procedure 4-2 on page 4-4)
- Enhanced DPNSS ISDN PRI signaling option (see Procedure 4-3 on page 4-7)

Procedure 4-2: Installing the CAS signaling option

- 1 Log in to the MRS or MRS/AP as **root** (refer to Appendix A for detailed instructions on logging in and accessing the SCL).
- 2 At the `/sci>` prompt, type **install** and press **<Enter>**.

A warning message appears on the screen:

```
*****
WARNING - Executing this option will cause the system to
be
          stopped. Once the Install Menu is entered the
only
          way to restart operations will be to reboot the
VRU.
*****
*****
```

A prompt then appears asking if you want to continue.

```
Are you sure you wish to continue?
Current continue = no
yes             - Continue with operation.
no             - Return to the previous menu.
Continue? =
```

ATTENTION

The installation script suspends all MRS processes and then displays the `/sci/install>` prompt.

- 3** Enter **y** and press **<Enter>** to continue with the installation.

The following messages are displayed:

```
Stopping the System Now!
.
. (various messages)
.
/sci/install>
```

- 4** Wait until the Ready light on the front panel of the MRS begins flashing before continuing. This step ensures that all MRS processes were stopped. On the MRS/AP, there is no Ready light to observe (just proceed to the next step).
- 5** At the `/sci/install>` prompt, type **package** and press **<Enter>**.

The following prompt is displayed:

```
Insert the floppy - type q to quit or hit ENTER to
continue:
```

4-6 Installing the Aculab E1/PRI signaling option

- 6** Insert the MRS Version 3.02.01 CAS Signaling option diskette and press **<Enter>**. The system responds with these messages:

```
Searching for the Size file
      Install in progress
```

Ignore the CUSLIST error messages. The system will continue with these messages:

```
      Installing files...
      Installation complete.
/sci/install>
```

- 7** Remove the diskette.
- 8** Run the Nortel customization script (refer to the section “Nortel Customization Procedure” in Chapter 6 of the *Nortel IVR 2.5/S Product Overview Guide*).
- 9** Continue with Procedure 4-4 on page 4-9.

Note: If it is not necessary for you to configure the country parameters, then restart the MRS now as described in steps 10 to 13 on page 4-12.

Procedure 4-3: Installing the MRS ISDN PRI signaling options

- 1 Log in to the MRS or MRS/AP as **root** (refer to Appendix A for detailed instructions on logging in and accessing the SCI).

- 2 At the `/sci>` prompt, type **install** and press **<Enter>**.

A warning message appears on the screen:

```
*****
WARNING - Executing this option will cause the system to
be
          stopped. Once the Install Menu is entered the
only
          way to restart operations will be to reboot the
VRU.
*****
*****
```

A prompt then appears asking if you want to continue.

```
Are you sure you wish to continue?
Current continue = no
yes              - Continue with operation.
no               - Return to the previous menu.
Continue? =
```

ATTENTION

The installation script suspends all MRS processes and then displays the `/sci/install>` prompt.

- 3 Enter **y** and press **<Enter>** to continue with the installation.

The following messages are displayed:

```
Stopping the System Now!
.
. (various messages)
.
/sci/install>
```

- 4 Wait until the Ready light on the front panel of the MRS begins flashing before continuing. This step ensures that all MRS processes were stopped. On the MRS/AP, there is no Ready light to observe (just proceed to the next step).

4-8 Installing the Aculab E1/PRI signaling option

- 5 At the `/sci/install>` prompt, type **package** and press **<Enter>**.

The following prompt is displayed:

Insert the floppy - type q to quit or hit ENTER to continue:

- 6 Insert the MRS Version 3.02.01 Enhanced DPNSS Signaling Option diskette and press **<Enter>**.

The system responds with these messages:

Searching for the Size file
Install in progress

Ignore the CUSLIST error messages. The system will continue with these messages:

Installing files...
Installation complete.
`/sci/install>`

- 7 Remove the diskette.
- 8 Run the Nortel customization script (refer to the section "Nortel Customization Procedure" in Chapter 6 of the *Nortel IVR 2.5/S Product Overview Guide*).
- 9 Continue with Procedure 4-5 on page 4-13.

Note: If it is not necessary for you to configure the country parameters, then restart the MRS now as described in steps 15 to 18 on page 4-16.

Configuring E1 CAS country parameters

Procedure 4-4: Configuring country parameters for CAS signaling option

- 1 At the `/sci/install>` prompt, type **country**.
The system displays the copyright information for the Nortel Internationalization utility.
- 2 When prompted, press **<Enter>** to continue.
The system displays the present country configuration, followed by this prompt:

`Do you wish to change the country parameters? [y/n]:`
- 3 Type **y** to change the current country configuration and press **<Enter>**.
The system displays this prompt:

`Are you using an ACL E1 network card? [y/n]:`
- 4 Type **y** and press **<Enter>** to continue.
The system displays this prompt:

`Please enter the number of trunks on your network card? 30 or 60 [] [y/n]:`

If you installed an ACL-30 E1 card, enter **30**. If you installed an ACL-60 E1 card, enter **60**.
- 5 Press **<Enter>** to continue.
The system displays a list of countries and signaling protocols.

Note: Implementation of a country's regulatory requirements may require additional hardware in order to adhere to the network requirements of a specific country.

4-10 Installing the Aculab E1/PRI signaling option

1. Australia	18. Morocco
2. Austria	19. Netherlands
3. Belgium	20. New Zealand
4. Brazil	21. Norway
5. China	22. Portugal
6. Denmark	23. South Africa
7. Finland	24. Spain
8. Germany	25. Sweden
9. Hong Kong	26. Switzerland
10. Hungary	27. United Kingdom
11. Italy	28. United States
12. Israel	29. 1TR6
13. Japan	30. DASS2
14. Korea	31. DPNSS
15. Luxembourg	32. ETS300
16. Malaysia	33. VN3
17. Mexico	34. EEMA

Enter the number of the country where this system is to be installed. ?

For CAS, the supported responses are

- 3 (Belgium)
- 4 (Brazil)
- 5 (China)
- 16 (Malaysia)
- 17 (Mexico)
- 34 (EEMA—Ericsson E&M)

- 6 Enter the appropriate CAS number for your country or signaling option.
- 7 Press **<Enter>**.

ATTENTION

If you installed the CAS signaling option for Belgium, Brazil, China, Mexico or Malaysia, the system prompts you to enter the number of Direct Dialed Inward (DDI) and Calling Line Identity (CLI) digits to be used. (DDI and CLI are equivalent to DNIS and ANI, respectively.) Consequently, it is suggested that you know the number you will need before installing the country parameters. (If you do not know the appropriate number, specify a sufficiently high number of digits.)

The system displays the following:

Enter the number of DDI digits expected: 0 to 30 []:

Enter the number of CLI digits expected: 0 to 30 []:

Do you want to strip calling line category digit?
[y/n]:

- 8 Enter the appropriate information and press **<Enter>**.

The system prompts you to verify the current configuration:

This system will be configured using x country
parameters

ACL Type = xx port

ACL Firmware = xxxxx

Number of DNIS (DDI) digits = x

Number of ANI (CLI) digits = x

Do you wish to continue the installation [y/n]:

4-12 Installing the Aculab E1/PRI signaling option

- 9 When your International signaling parameters are correct, enter **y**. Press **<Enter>**.

The system displays the following:

```
Installing files...
```

```
Updating the tunable kernel parameters
```

```
The kernel has been retuned
```

```
      The UNIX Operating System will now be  
rebuilt.
```

```
      This will take a few minutes. Please wait.
```

```
      Root for this system build is /.
```

```
      The UNIX Kernel has been rebuilt.
```

```
Backing up /unix to /unix.old
```

```
Installing new /unix
```

```
Setting up new kernel environment
```

```
The system must now be rebooted for the new  
parameters to take affect
```

```
The Nortel xxx Country Parameters  
have now been installed.
```

```
/sci/install>
```

- 10 Make sure that the last installation diskette has been removed from the disk drive.
- 11 At the `/sci/install>` prompt, enter **restart** and press **<Enter>**.
The system verifies the integrity of the newly installed packages, and informs you of any inconsistencies.
- 12 The MRS starts shutting down. The system automatically reboots once it reaches the shutdown state.
- 13 Allow the system to boot up normally. It takes several minutes.
- 14 If this is a new installation or a restoration of the signaling option, then you must activate the signaling option as described in "Activating the signaling option" on page 4-17. If this is part of an upgrade from Release 2.01/S to 2.5/S, then it is not necessary to activate the feature.

Configuring ISDN PRI country parameters

Note: The examples in the following procedure are based on the Enhanced DPNSS PRI signaling option.

Procedure 4-5: Configuring country parameters for the ISDN PRI signaling option

- 1 At the `/sci/install>` prompt, type **country**.
The system displays the copyright information for the Nortel Internationalization utility.
- 2 When prompted, press **<Enter>** to continue.
The system displays the present country configuration, followed by this prompt:

Do you wish to change the country parameters? [y/n]:
- 3 Type **y** to change the current country configuration and press **<Enter>**.
The system displays this prompt:

Are you using an ACL E1 network card? [y/n]:
- 4 Type **y** and press **<Enter>** to continue.
The system displays this prompt:

Please enter the number of trunks on your network card? 30 or 60 []:

If you installed an ACL-30 E1 card, enter **30**. If you installed an ACL-60 E1 card, enter **60**.
- 5 Press **<Enter>** to continue.
The system displays a list of countries and signaling protocols.

Note: Implementation of a country's regulatory requirements may require additional hardware in order to adhere to the network requirements of a specific country.

4-14 Installing the Aculab E1/PRI signaling option

1. Australia	18. Morocco
2. Austria	19. Netherlands
3. Belgium	20. New Zealand
4. Brazil	21. Norway
5. China	22. Portugal
6. Denmark	23. South Africa
7. Finland	24. Spain
8. Germany	25. Sweden
9. Hong Kong	26. Switzerland
10. Hungary	27. United Kingdom
11. Italy	28. United States
12. Israel	29. 1TR6
13. Japan	30. DASS2
14. Korea	31. DPNSS
15. Luxembourg	32. ETS300
16. Malaysia	33. VN3
17. Mexico	34. EEMA

Enter the number of the country where this system is to be installed.

For ISDN PRI, the supported response is

- 31 (Enhanced DPNSS)

6 Type **31** and press **<Enter>**.

The system displays the following:

Do you want to use Enhanced drivers [y/n]:

- 7 Type **y** and press **<Enter>**.

The system displays the following:

Configure DPNSS with bits A/X or B/Y [ab]:

Note: When responding to this prompt, use the opposite type of master/slave communication that the switch uses. For example, if the switch is configured for A/X communication, select B/Y. If the switch is configured for B/Y communication, select A/X.

- 8 Type **a** and press **<Enter>**.

The system responds with the following:

Do you want to edit the space.0 file [y/n]:

- 9 Type **y** and press **<Enter>**.

The system prompts you to verify the current configuration:

This system will be configured using xxx Enhanced parameters

ACL Type = xx port
ACL Firmware = xxxxx
DPNSS Signalling = X/X

- 10 When your International signaling parameters are correct, enter **y** and press **<Enter>**.

The system displays the following:

Installing files...

- 11 After a few moments, the system displays the following prompt:

Do you wish to continue the installation [y/n]:

- 12 Type **y** and press **<Enter>** to continue.

The system displays the following prompt:

Do you wish to manually edit the Aculab Space.c file? [y/n]

4-16 Installing the Aculab E1/PRI signaling option

- 13** If you are not familiar with the Space.c file, type **n** to disregard this question and continue the installation.

The system responds with the following message:

Do you wish to continue the installation [y/n]:

- 14** Type **y** and press **<Enter>** to continue.

The system displays the following message:

Updating the tunable kernel parameters

The kernel has been retuned

The UNIX Operating System will now be rebuilt.
This will take a few minutes. Please wait.

Root for this system build is /.

The UNIX Kernel has been rebuilt.

Backing up unix to unix.old

Installing new unix on the boot file system

Setting up new kernel environment

The system must now be rebooted for the new parameters
to take affect

The Nortel xxx Parameters
have now been installed.

/sci/install>

- 15** Make sure that the last installation diskette has been removed from the disk drive.
- 16** At the /sci/install> prompt, enter **restart** and press **<Enter>**.
The system verifies the integrity of the newly installed packages, and informs you of any inconsistencies.
- 17** The MRS starts shutting down. The system automatically reboots once it reaches the shutdown state.
- 18** Allow the system to boot up normally. It takes several minutes.

- 19** If this is a new installation or a restoration of the signaling option, then you must activate the signaling option as described in “Activating the signaling option” on page 4-17. If this is part of an upgrade from Release 2.01/S to 2.5/S, then it is not necessary to activate the feature.

Activating the signaling option

After the signaling option components (hardware and software) are installed, the option must be activated. Contact your Nortel service provider for assistance. Make sure the modem is connected to the system for remote login, as described in Appendix A.

Appendix A: Accessing the Service Console Interface

You can access the Service Console Interface (SCI) from a dumb terminal, a modem through an RS-232-C, or using telnet across a LAN.

See the following sections:

- “Using a terminal to access the SCI” on page A-2
- “Using a modem to access the SCI” on page A-3
- “Using the LAN to access the SCI” on page A-5
- “Accessing the SCI on an MRS/AP” on page A-6

Using a terminal to access the SCI

The “terminal” method is used only on an MRS/Rack or MRS/Tower. To use a terminal to access the SCI, follow these steps:

- 1 Connect a video terminal to the MRS system port B using an appropriate RS-232 cable.

- 2 Set the terminal parameters as follows:

baud rate	9600
duplex	Full
data bits	7
stop bits	1
parity	even
add LF	off

- 3 Press **<Enter>** and the following message should display:

```
<system name>
MRS Service Access Port          Revision 3.02
Copyright 1991-1996, Nortel. All Rights Reserved
login:
```

- 4 At the `login:` prompt, enter the appropriate account name. The default passwords for these accounts are as follows:

Account	Password	Used by
root	profile	Trained Service Personnel
service	access	Trained Service Personnel
admin	supervise	Site Administrators
user	nortel	Routine Maintenance

- 5 After you log in, the system prompts you for your terminal type. If the default terminal type displayed is correct, press **<Enter>**; otherwise, type in the correct terminal type.

Once this is completed, the SCI menu is displayed, followed by the `/sci>` prompt.

Using a modem to access the SCI

In North America, a modem that supports a 9600 kbps baud rate is shipped with every MRS system. Outside North America, a Nortel-recommended modem is provided by the distributor or customer. This modem must be connected to the MRS system when the system is installed.

ATTENTION

No modem should be connected to the MRS other than the one shipped with the system from the factory or provided by the distributor or customer at installation. Unless a local terminal is connected for a short period of time to perform local diagnostics or maintenance, the modem should not be disconnected from the MRS.

To use a modem to access the SCI, follow these steps:

- 1 Connect the modem to the MRS port B using a standard MRS-to-modem cable.
- 2 Set the terminal parameters as follows:

baud rate	9600
duplex	Full
data bits	7
stop bits	1
parity	even
add LF	off
- 3 From the remote location, dial in to the modem and wait for an answer. Once the modem is connected, press **<Enter>**.

The following message should display:

<system name>

MRS Service Access Port Revision 3.02
Copyright 1991-1996, Nortel. All Rights Reserved
login:

A-4 Accessing the Service Console Interface

- 4 At the `login:` prompt, enter the appropriate account name. The default passwords for these accounts are as follows:

Account	Password	Used by
root	profile	Trained Service Personnel
service	access	Trained Service Personnel
admin	supervise	Site Administrators
user	nortel	Routine Maintenance

- 5 After you log in, the system prompts you for your terminal type. If the default terminal type displayed is correct, press **<Enter>**; otherwise, type in the correct terminal type.

Once this is completed, the SCI menu is displayed, followed by the `/sci>` prompt.

Note: On an MRS/AP, if you log in as root a # prompt is displayed. At the # prompt, type `/usr/vrs/tools/sci -b /usr/vrs` and press **<Enter>** to access the SCI menu.

Using the LAN to access the SCI

To access an MRS across a LAN, the MRS must be connected to either an Ethernet or Token Ring network, and the host that will access the MRS must support TCP/IP and telnet (or rlogin).

To access the SCI, follow these steps:

- 1 At the host command line, enter the command: **telnet 128.1.1.111**

Note 1: If the Internet address for your MRS has been changed, enter the correct Internet address instead of the default address shown. This address is noted on your equipment list.

Note 2: If the host is an X Window-based UNIX workstation, Nortel recommends that this command be issued from an xterm window.

- 2 Once the session is connected, the following message should display:

login:

- 3 At the login: prompt, enter the appropriate account name. The default passwords for these accounts are as follows:

Account	Password	Used by
root	profile	Trained Service Personnel
service	access	Trained Service Personnel
admin	supervise	Site Administrators
user	nortel	Routine Maintenance

- 4 After you log in, the system prompts you for your terminal type. If the default terminal type displayed is correct, press **<Enter>**; otherwise, type in the correct terminal type.

Once this is completed, the SCI menu is displayed, followed by the /sci> prompt.

Note: On an MRS/AP, if you log in as root, a # prompt is displayed. At the # prompt, type **/usr/vrs/tools/sci -b /usr/vrs** and press **<Enter>** to access the SCI menu.

Accessing the SCI on an MRS/AP

The modem method (page A-3) and the telnet method (page A-5) can be used to access the SCI on an MRS/AP.

Also, if you have direct access to the console of the MRS/AP system, you can log in and access the SCI using these steps:

- 1 Press the <ALT>, <CNTRL>, and <F1> keys to access the command-line screen.
- 2 At the `login:` prompt, enter the appropriate account name. The default passwords for these accounts are as follows:

Account	Password	Used by
root	profile	Trained Service Personnel
service	access	Trained Service Personnel
admin	supervise	Site Administrators
user	nortel	Routine Maintenance

- 3 After you log in, the system prompts you for your terminal type. If the default terminal type displayed is correct, press <Enter>; otherwise, type in the correct terminal type.

Note: If you log in as root, a # prompt is displayed. At the # prompt, type `/usr/vrs/tools/sci -b /usr/vrs` and press <Enter> to access the SCI menu.

Appendix B: Card configurations

Aculab ACL-30 E1 Interface (75 Ω)

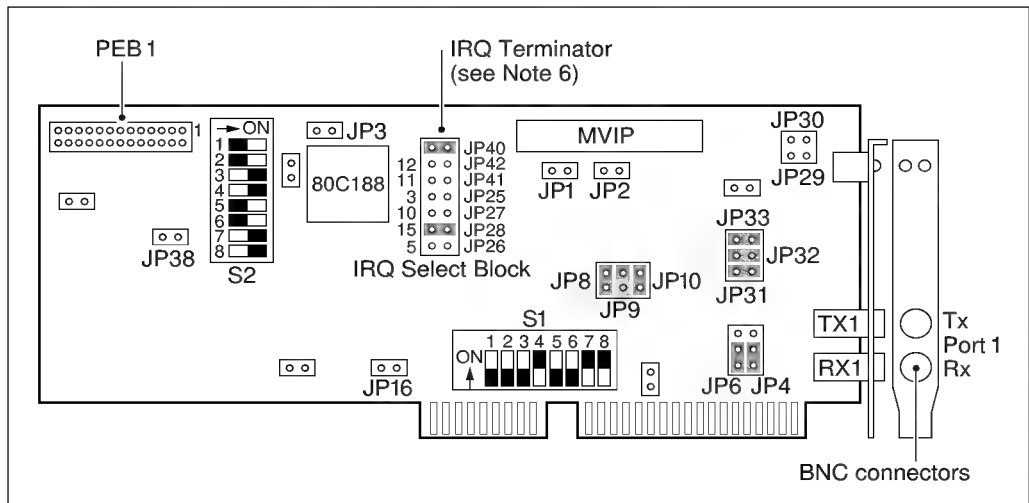


Table B-1: S1 I/O addressing for ACL-30 E1 Interface

Ports	1	2	3	4	5	6	7	8	I/O Address
Ports 00-29	on	on	on	off	on	on	off	off	0x320 - 0x323

B-2 Card configurations

Notes:

- 1 The ACL-30 is always a clock master on the PEB.
- 2 Set the appropriate jumpers to ground the shield for each BNC connector in use.

BNC Connector	Grounding Jumper
Port 1 TX1	JP32 - ON
Port 1 RX1	JP31 - ON

- 3 Each PEB connection requires one D/320-SC card.
- 4 Terminate the PEB at both ends to ensure proper electrical characteristics. The ACL-30 has built-in PEB terminators, so you must install the ACL-30 at one end of the PEB cable. You must remove all PEB terminators from the resource cards (TTS, VR, Fax) on the PEB.
- 5 The ACL-30 uses shared memory range E0000 to EFFFF.
- 6 Only one ACL-30 card per system is allowed.

Aculab ACL-60 E1 Interface (75 Ω)

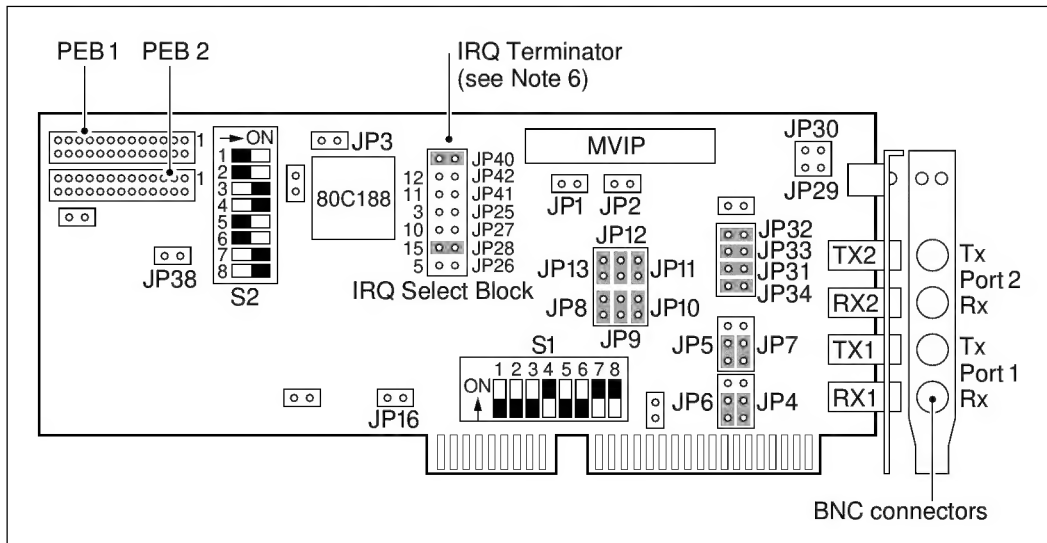


Table B-2: S1 I/O addressing for ACL-60 E1 Interface

Ports	1	2	3	4	5	6	7	8	I/O Address
Ports 00-59	on	on	on	off	on	on	off	off	0x320 - 0x323

Notes:

- 1** The ACL-60 is always a clock master on the PEB.
- 2** Set the appropriate jumpers to ground the shield for each BNC connector in use.

BNC Connector	Grounding Jumper
Port 2 TX2	JP34 - ON
Port 2 RX2	JP33 - ON
Port 1 TX1	JP32 - ON
Port 1 RX1	JP31 - ON

- 3** Each PEB connection requires one D/320-SC card.
- 4** You must terminate the PEB at both ends to ensure proper electrical characteristics. The ACL-60 has built-in PEB terminators, so you must install the ACL-60 at one end of the PEB cable. You must remove all PEB terminators from the resource cards (TTS, VR, Fax) on the PEB.
- 5** The ACL-60 uses shared memory range E0000 to EFFFF.
- 6** Only one ACL-60 card per system is allowed.

Nortel IVR 2.5/S

Aculab-Based E1 CAS/ISDN PRI Signaling Guide

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